

FAMILY SOCIOECONOMIC STATUS AND ADOLESCENTS'  
ACADEMIC ACHIEVEMENT:  
PARENTING PRACTICE AS MEDIATOR

CENTRE FOR NEWFOUNDLAND STUDIES

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**Family Socioeconomic Status and Adolescents' Academic Achievement:  
Parenting Practice as Mediator**

A thesis submitted to the School of Graduate Studies  
in partial fulfillment of the requirements for  
the degree of Master of Education

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## ABSTRACT

The aim of the study was to examine the relations between parenting practice, family socioeconomic status (SES), and adolescents' academic achievement. The mediating effects of two aspects of negative parenting practice, harshness and inconsistency, were also tested. A sample of 2,174 12- and 13-year-old adolescents who participated in the second data collection of the National Longitudinal Survey of Children and Youth (NLSCY) was used. It was found that (1) harshness and inconsistency were associated with adolescents' academic achievement; (2) family SES was significantly related to parental harshness and inconsistency; and (3) parenting practice was not a significant mediator in the link of family SES to mathematics achievement. Family SES and parenting practice had separate significant effects on mathematics achievement. No gender difference was found in the study.



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## CHAPTER 1

### Introduction

It has been suggested that proximal environmental processes have stronger effects on children's outcomes than distal factors (Bronfenbrenner & Ceci, 1994; Ryan & Adams, 1998; Wang, Haertel, & Walberg, 1990; Wang, Haertel, & Walberg, 1993). According to Wang et. al. (1993) proximal factors referred to those that were most close to day-to-day lives of children, while distal factors referred to those related to demographic, policy, and organizational elements. Among proximal factors, family socio-economic status (SES) is consistently considered to be one of the strongest predictors on various aspects of child development, such as cognitive functioning (Duncan, Brooks-Gunn, & Klebanov, 1994), school-based competence (Patterson, Kupersmidt, & Vaden, 1990), socio-emotional adjustment (Kaufmann, Gesten, Lucia, Salcedo, Rendina-Gobioff, & Gadd, 2000), and academic achievement (Conger, Conger, & Elder, 1997; White, 1982). However, many researchers indicated that SES itself, although a strong predictor, has little power to explain children's academic achievement. SES has been shown to have an influence on children's academic achievement indirectly through its effects on other factors, such as parenting style and parenting practice (Beyer, 1995).



In her review of socioeconomic disadvantage and child development, Mcloyd (1998) identified several variables linking family socioeconomic factors to academic achievement, including parental and home factors, teachers' behavior and school characteristics, and physical health status. At the family level, parenting variables, such as verbal interactions between mothers and children, expectation of parents for achievement, positive affective relations between parents and children, parental beliefs and attributions about the child, and discipline and control strategies have been identified as mediators between family SES and children's academic achievement (Hess & Holloway, 1984). Among these, discipline and control strategies appear to have a major influence on children's academic achievement (Baumrind, 1973; Hess & McDevitt, 1984; Marjoriebanks, 1979).

Being an important mediator between family socioeconomic status and children's academic achievement, parenting practice is also a proximal variable which has direct influence on children's development (Baumrind, 1969; Baumrind, 1971; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987). In general, children benefit more in families in which parents are both responsive and demanding: they show warmth and acceptance; get involved in children's activities; encourage word intake and exchange; exercise assertive and rational, but not intrusive or punitive discipline; and encourage children to make their own decisions. From 1960's, these practices became recognized as an "authoritative" parenting style (Baumrind, 1969; Baumrind, 1971). Children raised by authoritative parents demonstrated lower levels of both externalizing and

internalizing behavior problems (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994), more positive psychosocial adjustment (Lamborn, Mounts, Steinberg, & Dornbusch, 1991), and a higher level of academic achievement (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Paulson, 1994; Steinberg, Lamborn, Dornbusch, Darling, 1992), compared to children whose parents were nonauthoritative, or "authoritarian" and "permissive".

The effects of negative parenting characteristics, such as harshness, become more salient during adolescence than in early childhood. During the identity formation stage of adolescence, a unilateral and asymmetrical authority is supplanted by the demand for symmetrical and reciprocal relationships between parents and children (Piaget, 1932/1965). Adolescents expect rational reasoning, instead of intrusive or punitive disciplines, such as when disagreement occurs. Harsh parenting or arbitrary authority, in contrast with rational authority, was argued to be associated with covert hostility, disaffiliativeness, rebelliousness, and a negative, aggressive behavior style in adolescents which led adolescents to reject adult standards for academic performance and behavior (Baumrind, 1969; DeBaryshe, Patterson, & Capaldi, 1993; Shumow, Vandell, & Posner, 1998).

Inconsistency refers to "the use of disparate practice across time and between parents" (Gardner, 1989). Walhler and Dumas (1986) suggested that inconsistent parenting was aversive to children, led children to escape from unpredictable interaction, and was linked to behavior problems. Consistency, on the contrary, has been widely argued to be an important factor which contributed

to children's higher academic performance. Compared to the large body of literature on relation between children's academic achievement and harshness in parent-child interaction, only a few studies have focused on the relation between inconsistency and academic achievement (see exception, Fletcher, Steinberg, & Sellers, 1999; Wentzel, Feldman, & Weinberger, 1991), and the samples in those studies were mostly young children.

There is evidence indicating that gender differences exist in the relations between parenting, family SES, and children outcomes. In general, it seems that boys are more at risk for academic problems as a result of negative parent-child interaction, family economic problems, and maternal employment (Baumrind, 1971; Baumrind 1989; Gold & Andres, 1978; Wentzel, Feldman, & Weinberger, 1991). For example, Baumrind (1971; 1989) found that authoritarian parenting seemed to be more harmful for middle-class boys than for girls. Boys did not benefit from maternal employment to the same degree that girls did (Gold & Andres, 1978). A possible explanation might be that adolescent boys are more prone to be rebellious and disobedient, and require more attention and time from parents. As a result, they suffer more from reduced attention from parents as a side effect of maternal employment, compared to girls (Beyer, 1995).

The purpose of this study was threefold. First, this study examined the association between two characteristics of negative parenting practice, harshness and inconsistency, and adolescents' academic achievement. It was hypothesized that harshness and inconsistency in parenting were related to lower academic achievement in adolescence. Second, this study explored the

relation between negative parenting practice and family SES, and a negative relation between these two variables was expected. Finally, the mediating effect of the parenting practice on SES in predicting adolescents' academic achievement was tested. Because there is considerable evidence indicating that boys and girls respond differently to parenting practice and family economic factors, gender differences were also examined.



## CHAPTER 2

### Literature Review

#### 2.1 Parenting Practice and Academic Achievement

The literature on socialization practices has demonstrated that rational discipline, nonpunitive punishment practice, and consistency in child rearing are positively related to developmental outcomes in children, while harsh, punitive, and inconsistent discipline is negatively related to children's outcomes (Maccoby & Martin, 1983). In Baumrind's (1969, 1971, 1991) studies on early childhood, parental style was categorized into three types: authoritative, authoritarian and permissive. Authoritative parents encourage verbal give and take, use reason as well as power to achieve their objectives, get involved in children's activities, and demonstrate acceptance and warmth toward their children. Authoritative parents were defined as:

... both demanding and responsive. They monitor and impart clear standards for their children's conduct. They are assertive, but not intrusive or restrictive. Their disciplinary methods are supportive rather than punitive. They want their children to be assertive as well as socially responsible, and self-regulated as well as cooperative (Baumrind, 1991).

Authoritarian parents believe in strict adherence to their rules, do not encourage verbal give or take, value obedience and respect of authority, and favor punitive, forceful discipline. Authoritarian parents were defined as:

... demanding and directive, but not responsive. They are obedience- and status-oriented, and expect their orders to be obeyed without explanation. They provide an orderly environment, and a clear set of regulations, and monitor their children's activities carefully (Baumrind, 1991).

Compared to authoritative and authoritarian parents, permissive parents do not present themselves as an active agent for shaping their children's behavior. Instead, they "attempt to behave in a nonpunitive, acceptant, and affirmative manner toward the children's impulse, desires, and actions" (Baumrind, 1969). Permissive or nondirective parents were defined as:

... more responsive than they are demanding. They are nontraditional and lenient, do not require mature behavior, allow considerable self-regulation, and avoid confrontation (Baumrind, 1991).

Authoritative parenting style has been found to be significantly related to positive children's outcomes. Children of authoritative parents display lower

levels of both externalizing behavior problems (Pettit, Bates, and Dodge, 1997) and internalizing behavior problems (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994), more positive psychosocial adjustment (Lamborn, Mounts, Steinberg, & Dornbusch, 1991), and higher level of academic achievement (e.g., Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Glasgow, Dornbusch, Troyer, Steinberg, Ritter, 1997; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Paulson, 1994; Pittman, Chase-Lansdale, 2001; Steinberg, Lamborn, Dornbusch, Darling, 1992).

Two characteristics distinguishing between authoritative parenting style and authoritarian parenting style are harsh discipline and inconsistent parenting practice. Authoritarian parents tend to excise punitive disciplines and their conduct is perceived as inconsistent by their children, while authoritative parents rationally solve the problems when disagreement occurs, and their discipline remains stable and predictable.

These two negative parenting factors, harshness and inconsistency, become more pertinent when children grow into adolescents. In early adolescence, new patterns of behavior emerge, including higher valuing of independence, perceived relaxation of parental standards, and increased reliance on friends relative to parents (Feather, 1980; Greenberger, 1984; Jessor & Jessor, 1978). Adolescents require more rational reasoning from their parents in order to accept the parental authority. According to Baumrind (1969),



...the asymmetry of power which characterizes childhood no longer exists at adolescence. The adolescent cannot be forced physically to obey over any period of time... While head-on confrontation serves to strength authority in the Authority Inception Period [Dubin & Dubin, 1964], it undermines authority during adolescence.

In her follow-up studies on parenting style during adolescence, Baumrind (1991) highlighted the increased importance of rational and consistent parenting practice for adolescents. Three parental control types emerged from an assessment of parental rational control: supportive control, directive control, and assertive control. Supportive control was defined as "responsive discipline, principled used of rational explanations to influence adolescents, intellectual stimulation, and encouragement of individuation." Directive control emphasized restrictive control and conventional values, while assertive control was defined as "firm but nonrestrictive monitoring of adolescents' lifestyle and activities, and straightforward confrontation and enforcement of rules." Supportive control versus directive/assertive control is similar to rational authority versus inhibiting authority (Pikas, 1961) and supporting autonomy versus controlling behavior (Deci & Ryan, 1985). Supportive control, rational authority, and supporting autonomy emphasizes child's or subordinate's autonomy, and rational communications between child and parents or between subordinate and manager, while directive/assertive control, inhibiting authority, and controlling behavior all emphasized respecting authority without questioning.



Supportive control, directive control, and assertive control were further used to subdivide the original three parenting styles in early childhood into six parenting styles in adolescence: authoritative, democratic, directive, good-enough, nondirective, and unengaged. Authoritative and democratic families were characterized by supportive control. Authoritative and democratic parents were described as:

... compared to other types of parents, are more rational, consistent, and considerate, and thus are less likely to induce disruptive emotional responses (internalizing problem behavior) that interfere with complex reasoning or task performance (Baumrind, 1969).

Supportive control, rational authority, and supporting autonomy have been found to be related to higher academic achievement. Adolescents have the capability of operational thought, and can differentiate accurately between authoritative/democratic and directive parental control (Baumrind, 1969). Supportive control or rational parental authority tends to be accepted by adolescents, while directive/assertive control or inhibiting parenting authority tends to be rejected (Baumrind, 1981; Pikas, 1961). Pikas (1961) found a positive relation between rational parenting authority and adolescents' verbal intelligence. Similarly, Deci and Ryan (1985) found that, compared to children of teachers oriented towards controlling, children of teachers oriented towards

supporting autonomy had higher intrinsic motivation and self-esteem, which might in turn lead to higher level of academic achievement.

Compared to the large body of literature examining parenting style, relatively few studies have focused on specific parenting practices. The necessity of distinguishing global parenting style from specific parenting practices was emphasized by Darling and Steinberg (1993). According to them, parenting style referred to “a constellation of attitudes toward the child that are communicated to the child and create an emotional climate in which the parent’s behaviors are expressed”, while parenting practices are “behaviors defined by specific content and socialization goals”. Global parenting style was argued to be partly expressed through parenting practices, and covered a wider range of parent-child interactions than parenting practices, because the former captured more subtle behaviors that made the latter meaningful (Darling & Steinberg, 1993). There is also evidence suggesting that differing domains of parenting are relatively independent and are associated with differing types of child outcomes (Mize & Pettit, 1997; Patterson, Reid, & Dishion, 1992; Pettit, Bates, & Dodge, 1997). Although researchers argued that global parenting style had more stable and predictable influence on children’s outcome than parenting practice, it seems the latter had strong effect in certain circumscribed socialization domains, such as academic achievement (Darling & Steinberg, 1993).

In the parenting literature, harshness refers to punitive and irrational parenting disciplines and characterizes authoritarian parental control. Parents who are classified as harsh do not encourage word intake and exchange in their

family, and tend not to solve problems together with their children when there is a disagreement. They practice intrusive and rigid disciplines, and tend to physically punish their children. Harshness has been found to be related to perfectionism (Kawamura, Frost, & Harmatz, 2002), lower level of adolescent problem solving (Rueter & Conger, 1998), higher levels of subsequent peer victimization (Schwartz, Dodge, Pettit, & Bates, 2000), higher level of adolescent externalizing behavior (Lansford, Criss, Pettit, Dodge, & Bates, 2003), and poorer academic achievement (DeBaryshe, Patterson, & Capaldi, 1993; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Olson, et al., 1992; Ryan & Adams, 1998; Wentzel, Feldman, & Weinberger, 1991). For example, Ryan and Adams (1998) found that hostile parenting practices were negatively related to academic achievement for both boys and girls of all age groups. Similarly, Wentzel, Feldman, and Weinberger (1991) found that sixth grade boys' classroom grades were directly and negatively related to mother's harsh and inconsistent discipline.

Despite the small number of studies which examined the relation between consistency in parenting practices and adolescents' academic achievement, the term consistency has been defined in several different ways in the parenting literature, including intrapersonal consistency versus interpersonal consistency, and parenting style consistency versus parenting practice consistency.

Intrapersonal consistency refers to the stable and predictable interaction between parent and his/her children. Interpersonal consistency refers to the extent to which parents share the same values, and practice the same disciplines when interacting with their children. The value of both interpersonal and

intrapersonal consistency is well accepted in modern society. Wagonseller and McDowell (1979) argued that consistency in parenting practices helps the child learn about expected responses as a result of his/her behavior and internalize what he/she learns from those responses, which in turn, helps the child develop self-control. However, when parents allow their mood to affect their reactions to the child, the inconsistent and unpredictable responses frustrate the child and cause the child try to test the rules instead of trying to understand the appropriate behavior.

It is believed that children benefit from the consistent messages they receive from their parents and related adults around them, and consistency comprises an important component of positive parenting (Chao & Willms, 2002; Fletcher, Steinberg, & Sellers, 1999; Gardner, 1989; Steinberg & Levine, 1990; Wagonseller & McDowell, 1979). For example, Gardner (1989) found intrapersonal consistency was significantly related with preschoolers' conduct-problems. Rimm and Lowe (1988) found, in their studies of a sample of 22 underachieving gifted students, that consistency between parents is more important than any other particular parenting practice.

In order to understand *consistency*, it is also pertinent to distinguish parenting style consistency from parenting practice consistency. As indicated above, specific parenting practice should be distinguished from global parenting style as a general climate or environment in a family. Fletcher et. al. (1999) argued that it cannot be assumed that the effects of consistent parenting style on adolescents' development will be similar to the effects of consistent parenting



practice. It is possible that parents who share the same general attitudes towards their child practice differently in certain disciplinary behaviors. According to Fletcher et. al. (1999), children from homes with two authoritative parents experience less psychological and somatic symptoms of distress than their counterparts with one authoritative and one nonauthoritative parent.

## 2.2 Parenting Practice and Family SES

Socioeconomic status (SES) refers to the relative ranking of an individual, a family, or a group on a hierarchical social structure, according to access to, or control over, some combination of valued commodities such as wealth, power, and social status (Mueller & Parcel, 1981; Statistics Canada, 1996). Although there have been disputes about how SES should be defined and measured, there is general agreement that parental occupation, parental education, family income, prestige, power, and lifestyle are important components of SES (House, 1981). Studies have shown that family SES has significant effect on parenting practice. In general, parents of higher SES levels demonstrated more authoritative characteristics towards their children: they were more responsive to their children, more involved with their children's activities, and were more rational, consistent and less punitive, compared to parents of lower SES levels (Baumrind, 1991; Beyer, 1995; Conger, Conger, & Elder, 1997; Mcloyd, 1998).

Parental occupation, especially paternal occupation, may be the most commonly used indicator of SES in educational studies (White, 1982).

Traditionally, it was assumed that "the work status of the household head, who is

assumed to be male, provides the source of social status for the family” (Mueller & Parcel, 1981). However, over the last three decades, maternal occupation gradually drew more attention because of the dramatic increase in the rate of maternal employment and the increase in the number of mother-headed single-parent families (Beyer, 1995).

Two main indicators of parental occupation in the literature are parental employment status, that is to say whether employed or not, and the characteristics of parents' occupation, or parental occupation prestige. In her review of maternal employment and children's academic achievement, Beyer (1995) pointed out that both of these indicators seem to be related to parenting practices through certain mediators. Factors such as parent involvement, warmth, and role satisfaction have been shown to be significant mediators in linking parental employment status to negative parenting practices, such as harshness and inconsistency. For example, studies have shown that mothers and fathers who are not satisfied with their jobs tend to withdraw from their family lives, become less involved and less responsive with their children, and employ harsher disciplining strategies such as anger, criticism, punishment, and threats, than employed, content parents (Barling, 1991; Crockenberg & Litman, 1991; Gottfried & Gottfried, 1988, Grossman, Pollack, & Golding, 1988).

In addition to whether employed or not, and whether satisfied with the employment or not, parents' occupational characteristics or occupation prestige also affects their parenting practice. Beyer (1995) concluded,

“Working-class parents are typically employed in occupations characterized by an asymmetry in power where adherence to rules and obedience to superiors are required. Because questioning authority can result in the loss of a job, it is adaptive for members of the working class to accept rules (Kohn, 1963). The typical occupations held by members of the middle-class allow greater self-determination and require responsibility and decision-making (Kohn, 1963; Turner, 1970).”

Similarly, Deci and Ryan (1985) found that subordinates' perception of self, their jobs, and the work climate was affected by managers' orientation toward supporting autonomy versus controlling behavior: subordinates of managers who were more supporting of autonomy felt more secure, and more satisfied with their job, compared to subordinates who worked with controlling-oriented managers. Consequently, it might be argued that middle-class parents may demonstrate more autonomy-supportive behaviors toward their children than working-class parents (Dornbusch, et al., 1987; Steinberg, et al., 1992). Or, middle-class parents tend to be somewhat lower in authoritarian control and higher in authoritative control.

Parental education, household income, and intact family status are all correlated with parental occupation and have a direct impact on parenting practice. For example nonemployed mothers were more likely to be single parents, or come from families with lower household income level (Beyer, 1995;

Hoffman, 1961; Hoffman, 1974). Parental education has been widely used as an indicator of family SES in educational literature (e.g., Deslandes, Bouchard, & St-Amant, 1998; Dornbusch, et al., 1987; Steinberg, et al., 1992). In general, parents who received more education use more positive and rational, and less harsh parenting practices than less-educated parents do (DeBaryshe et al., 1993; Shumow et al. 1998). In their study of harsh parenting in low-income families, Shumow et al. (1998) found that parents with the least income and education were more likely to endorse harsh parenting approaches compared to low-income parents who had relatively more education.

Household income is argued to be the most important single indicator of family SES (Beyer, 1995; Ryan, & Adams, 1998). Household income not only relates to resource purchases in a family, but also to parents' psychological factors, such as depression and anxiety, which have direct impact on their parenting practices. This is especially true for the disadvantaged families with low household income. For example, parental unemployment and income loss are correlated with irrational, harsh, and punitive disciplines, while regular incomes reduce financial worries in a family, and help improve the general climate "by reducing stress and easing tensions among family members" (Bloom-Feshbach, Feshbach, & Heller, 1982). Thus, it might be possible that parents who feel financially secure will discipline their children with less harsh and more consistent strategies than parents who feel the financial pressure in a family.

Intact family status is another factor that closely related with family SES. Single-parent families tend to be poorer than intact families, and are "more likely



to have been classified in the lower two Hollingshead social status classes (47%), compared to intact families (14%)” (Pettit, Bates, & Dodge, 1997). Single parents are also found to be more negative in their discipline practices. For example, Pettit, Bates, and Dodge’s (1997) found that ineffective parenting, such as harsh, physical discipline, are related to family adversity, which was defined as low socioeconomic status, being raised in a single-parent household, and family stress. Similarly, Bank, Forgatch, Patterson, and Fetrow (1993), and Wagonseller and McDowell (1979) found that single parenthood was associated with inconsistent discipline.

### 2.3 Parenting Practice as Mediator between Family SES and Academic Achievement

It is well documented that SES, a measure of parental occupation, education, prestige, and income, is among the best predictors of children’s academic achievement (Beyer, 1995; Gottfried, 1991; Heyns, 1982). In general, children raised in poor or low-SES families do not perform as well as children raised in nonpoor and middle-class families (Conger, Conger, & Elder, 1997; Entwisle & Alexander, 1990; Havemen & Wolfe, 1995; Hill & Duncan, 1987; Patterson, Kupersmidt, & Vaden, 1990; White, 1982). For example, Conger, Conger, and Elder (1997) found in their study of 357 adolescents that higher family SES predicted better cognitive performance after controlling for family and child characteristics. Similarly, Hill and Duncan (1987) found family SES was significantly related to schooling of both sons and daughters.

Despite a widely accepted belief that SES is strongly correlated with measures of academic achievement, White's meta-analysis (1982) revealed a positive, but only weak correlation ( $\alpha=.22$ ) between these two variables. This significant but weak correlation between family SES and children's academic achievement was supported by some recent studies (e.g., Ryan & Adams, 1998; Seifert, Canning, and Lindemann, 2001; Seifert & Schulz, 2003). For example, Seifert and Schulz found that SES was moderately predictive of adolescents' academic achievement in mathematics and reading ( $r = .18$ ). Similarly, in their study of family relationships and children's school achievement using the National Longitudinal Survey of Children and Youth data set, Ryan et al. (1998) found that children were ranked higher by their teachers in school achievement when they were from families of higher SES level, compared to children of families of lower SES level. This finding was consistent across age and gender but the effects were small (.11 for girls, .14 for boys, and .12 in general).

In addition to family SES as a whole, all the important components of SES are argued to have their own effects on children's academic achievement. Parental education has been consistently found to be correlated with children's educational achievement (Chao & Willms, 2002; Sewell & Shah, 1968). For example, in their study of a sample of randomly selected 9,007 high school students, Sewell and Shah (1968) found that both father's and mother's education were positively related to college attendance and college graduation, with or without controlling for child's intelligence.

The effect of parent occupation, especially maternal occupation, on children's academic achievement is of significance, and mixed results have been reported in the literature: some studies suggested that the children of middle-class working mothers did better in school than children of nonemployed mothers (Sewell & Shah, 1968); some studies found negative relation between maternal employment and child schooling performance (Hill & Duncan, 1987); while others found that maternal employment was not related to children's academic achievement (Bronfenbrenner & Crouter, 1982; Gottfried, 1991; Gottfried et al., 1988). Early studies argued that the increasing maternal employment rate was related to the poorer academic achievement of children in general because working mothers had restricted time available for raising children well. However, according to Bronfenbrenner and Crouter (1982) the assumption that maternal employment has disrupting and damaging effects on children's development has been proven to be inaccurate. Factors such as the nature and conditions of work, the psychological meaning of work, and the historical period in which the investigation was conducted, all contributed to the disparate results in the literature. Hoffman (1961) argued that the lack of control in empirical studies of the effect of maternal employment on academic achievement might also lead to some of the disagreement in findings.

Household income and intact family status appear to be more clearly related to children's academic achievement. Children benefit from families' increased or stable monetary power and an intact family environment, which links to their cognitive development. This effect is especially crucial for children from

lower socioeconomic strata (Conger, Conger, Elder, Lorenz, Simons, & Whitbeck, 1992). For example, Patterson, Kupersmidt, and Vaden (1990) found that family income level was one of the best predictors of both children's conduct problems and academic achievement: children from low-income homes received lower composite (reading / math / language) percentile scores. Similarly, in their study of child care and well-being from the National Longitudinal Survey of Children and Youth, Seifert et al. (2001) found a positive but small effect of family income level on children's Peabody Picture Vocabulary Test (PPVT) scores. Lipman, Offord, Dooley, and Boyle (2002) found that children in single-parent families had lower PPVT scores at ages four and five, and had lower scores on mathematics tests at ages six to eleven.

Although, as Beyer (1995) pointed out, there might be a direct path between family SES and children's academic achievement, there may be an indirect effect of family SES on children's academic achievement through parenting styles and parenting practices (Hess & Holloway, 1984; Marjoribanks, 1996), and this mediating effect may account for some of the controversy in the literature about the relation between family SES and children's academic achievement. For example, Conger, Conger, Elder, Lorenz, Simons, & Whitbeck (1992) found ineffective parenting practice was a mediator between family economic distress (i.e., low income, unstable employment, and indebtedness) and lower levels of positive adjustment and higher levels of behavior problems. Single parents tended to use more ineffective parenting practices, such as harsh discipline and physical punishment, which in turn had a negative effect on



children's externalizing problems, social skillfulness, and academic performance (Pettit, Bates, and Dodge's, 1997). Similarly, in his study of 900 11-year old Australian children and their parents, Marjoribanks (1996) found that the proximal process of parenting practice was a substantial mediator of family SES level on children's academic achievement.

Adolescents' gender may also be a potential moderator of the relations between parenting style, family SES, especially maternal employment, and academic achievement. For example, Maccoby and Martin (1983) found that parents practice different socialization strategies with children of different genders. Boys tend to receive both more punishment, especially physical punishment, and praise than girls, while girls reported receiving more parental warmth than boys (Maccoby & Jacklin, 1974). In general, it seems that boys are more at risk in families of lower SES or when parents practice harsh discipline. Conger, Conger, and Elder (1997) found that family financial conflicts were especially detrimental to boys.

It also has been argued that maternal employment had differing effects for boys and girls. For example, in middle-class families, boys are negatively influenced by maternal employment while girls are positively affected by their employed mothers (Beyer, 1995; Gold & Andres, 1978). Gold and Andres (1978) found that sons of employed mothers had lower achievement test scores while daughters of employed mothers have higher achievement test scores. Similarly, Marjoribanks (1996) found that the mediating effects of proximal family processes

between family social status and children's academic achievement was larger for boys than for girls.

A possible explanation for the differing effects of maternal employment for boys and girls is a role model hypothesis. It is argued that daughters of employed mothers benefit from their mothers' employment since they tend to use their mothers as role models, and have higher expectations of their own career plans (D'Amico, Haurin, & Mott, 1983; Hill & Duncan, 1987). Boys, who exhibit a higher rate of disobedience and defiance than girls (Crockenberg, & Litman, 1991), require more parental attention and monitoring. They tend not to use their mothers as role models, and probably only suffer from the disadvantages of maternal employment, such as decreased monitoring.

## 2.4 Research Questions

The current study examined relations between parenting practice, family SES, and adolescents' academic achievement. The mediating effects of two aspects of negative parenting practice, harshness and inconsistency, were also tested. Mediator variables, according to Baron and Kenny (1986), "explain how external physical events take on internal psychological significance". A variable can be determined to be a mediator only when the following three conditions are met:

- (a) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e., Path a), (b)

variations in the mediator significantly account for variations in the dependent variable (i.e., Path b), and (c) when Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant. (Baron & Kenny, 1986)

In the context of current study, the three conditions led to the following hypotheses:

1. Harshness and inconsistency are related to adolescents' academic achievement.
2. Family SES is negatively related to parental harshness and inconsistency.
3. When the above two paths are controlled, the relation between family SES and adolescents' academic achievement is no longer significant.

This study builds on previous studies in three ways. First, prior studies examining the relations between family SES, parenting practice, and children's academic achievement usually had their focus on middle-class white families which weakened their generalization to other groups. In this study, a heterogeneous national sample of families representing children from different economic, cultural, and ethnic backgrounds in Canada. In addition, a parent survey, instead of a child survey, was used in the study. Although the literature

suggested that children's perceptions of their parents' behavior may be a better predictor of their own outcomes (Golden, 1969; Moscovitz & Schwarz, 1982; Schaefer, 1965), parent's surveys have been shown to be useful in some studies of children's outcomes (e.g., Glasgow et al., 1997; Marjoribanks, 1996; Shumow, Vandell, & Posner, 1998).

Second, two particular aspects of negative parenting practice, harshness and inconsistency, were explored, which could build on the extant literature, most of which use general parenting style as predictor of children's academic achievement. Finally, gender differences were also examined in this study. The heterogeneous sample used in the current study provided an opportunity to examine the gender effects on a larger scope, comparing to previous studies most of which used homogenous samples when testing gender difference.



## CHAPTER 3

### Method

#### 3.1 Sample

The sample in this study was from the second data collection of the National Longitudinal Survey of Children and Youth (NLSCY). The NLSCY is the first long-term study designed to measure the child development and well-being in Canada (Human Resources Development Canada [HRDC], 1996). To date, three cycles of data collection have been carried out, in 1994-1995, 1996-1997, and 1998-1999 respectively. The NLSCY sample for the first data collection (Cycle one) was designed to be representative for all children 0 to 11 years of age in each of the 10 provinces across Canada, using the Statistics Canada Labor Force Survey and the National Population Health Survey. Up to 4 children per household were included. Cycle one of the NLSCY resulted in a sample of 13,439 households with 22,831 children. The Cycle two sample of the NLSCY included those children who participated in Cycle one and additional one- and two- year-old children. That is to say, the cross-sectional population of Cycle two was defined as children aged 0 to 13 living in a province in 1996. In total, 13,248 households and 20,025 children participated. The Cycle three sample consisted of children who were in Cycle two and additional one- and five-year-old children; the total sample consisted of 19,215 children.

In Cycle two, a set of questions was designed exclusively for the 12- and 13- year old children who were 10 and 11 year old in Cycle one. These questions were about negative parenting practices and were of particular interest. Both Cycle one and Cycle three did not include the same set of questions. Therefore, in the current study, only children of age 12 and 13 who have participated in Cycle two of the NLSCY were included. One child was randomly selected for each household. This reduced the sample size to 2,174. The demographic features of the sample are shown in Table 1.

Table 1. Characteristics of the 12- and 13-Year Old Children in Cycle two of National Longitudinal Survey of Children and Youth

Variable	Category	Frequency (percentage %)
Sex	Male	1096 (50.41)
	Female	1078 (49.59)
Age	12	1148 (52.81)
	13	1026 (47.19)
Family Structure	Intact family	1555 (71.53)
	Nonintact family	619 (28.47)
Mother's Education	Graduate from high school	1671 (78.38)
	Below high school	461 (21.62)
Father's Education	Graduate from high school	1270 (70.99)
	Below high school	519 (29.01)
Total		2174

As indicated in the table, the sample was evenly distributed between the two age groups and for gender. More than one fourth of children came from nonintact families, such as single-parent families or blended families. Approximately one fifth of the female parents and one fourth of the male parents did not graduate from high school. Because there were missing data for different variables, the sample size might be different for each analysis.

### 3.2 Measures

In Cycle two of the NLSCY, there were four questionnaires used in the data collection process, Teacher's Questionnaire, Principal's Questionnaire, Parent Questionnaire, and Child Questionnaire. In this study, parents' responses to the questions in the Parent Questionnaire were used as the measure of the variables of interest. The Parent Questionnaire was completed by both the PMK and her/his spouse/partner. A PMK was defined as the Person Most Knowledgeable about the child. "The purpose of the Parent Questionnaire was to gather general health information for both the PMK and her spouse/partner and to get some general information on the child's social environment including mental health of the PMK, social support, family functioning and characteristics of the neighborhood" (HRDC, 1996). In most of the cases the PMK was the mother of the child.

Cycle two Primary file in the "Public Use" NLSCY micro data file contained information from the Cycle two Parent Questionnaire and was used in this study. Some variables have been suppressed in the data set to protect the anonymity of

individual survey respondents, and thus limited the availability of variables under study. For example, the children's identification number has been suppressed in Cycle two Parent data set. Therefore, it was not possible to link parents' responses to responses on other related questionnaires, such as Cycle two Child Questionnaire, or Cycle one and Cycle three Parent Questionnaires. Although the NLSCY was designed as a longitudinal survey, due to the limitation of the publicly released NLSCY data set, the current study was cross-sectional in nature.

### 3.2.1 SES

In this study, family socio-economic status was measured in two ways. First, a composite variable, cross-sectional SES (BINHD08), constructed in Cycle two of the NLSCY data set was used. The composite SES variable was derived from five sources: the level of education of the PMK, the level of education of the spouse/partner, the prestige of the PMK's occupation, the prestige of the occupation of the spouse/partner, and household income (HRDC, 1996). (Descriptive statistics on the composite SES variable are included in Table 4.)

In addition, all five components of the composite SES variable, as well as an intact family status variable, were used as individual variables in order to examine the separate effect of each component on parenting practice and children's academic achievement. In the composite SES variable, *years of school* (BEDPD04 for the PMK, and BEDSD04 for the spouse/partner) was used to define parental education. However, these variables were suppressed in the



“Public Use” NLSCY data set, the variable *whether graduated from high school or not* (BEDPQ02 for the PMK, and BEDSQ02 for the spouse/partner) was used instead.

In the NLSCY, for both the PMK and the spouse/partner, occupations were defined according to his/her main job during the previous 12 months (BLFPD09 for the PMK, and BLFSD09 for the spouse/partner). The occupational prestige was grouped into 16 categories, based on a scale developed by Pineo, Porter, and McRoberts (1977) as following (see Table 2). These two parental occupation variables were treated ordinally in the current study and were recoded in a way that the higher number referred to higher occupational prestige.

In the NLSCY, household income included income from the following main sources: wages and salaries, income from self-employment, worker's compensation, unemployment insurance, social assistance, and other resources (HRDC, 1996). The variable *income adequacy* (BINHD07) was used in the current study. It was on a five-point scale. The categories are described in Table 3, which was adapted from Seifert, et al.'s (2001) summary table for the same variable.

Table 2. Categories and frequencies of parental occupation for parents of 12- and 13-year old children

Category	Description	Case number (Percentage %)	
		Father	Mother
1	Self-employed professional	29 (1.72)	8 (0.48)
2	Employed professional	105 (6.24)	142 (8.53)
3	High-level management	73 (4.34)	48 (2.88)
4	Semi-professional	69 (4.10)	221 (13.27)
5	Technician	50 (2.97)	24 (1.44)
6	Middle Manager	144 (8.56)	106 (6.37)
7	Supervisor	45 (2.68)	52 (3.12)
8	Foreman/forewomen	124 (7.37)	9 (0.54)
9	Skilled clerical/sales/service	47 (2.79)	217 (13.03)
10	Skilled crafts and trade	349 (20.75)	10 (0.60)
11	Farmer	53 (3.15)	17 (1.02)
12	Semi-skilled clerical/sales	78 (4.64)	302 (18.14)
13	Semi-skilled manual	244 (14.51)	103 (6.19)
14	Unskilled clerical/sales/services	25 (1.49)	250 (15.02)
15	Unskilled Manual	215 (12.78)	129 (7.75)
16	Farm Laborer	32 (1.90)	27 (1.62)

Table 3. Characteristics of Income Adequacy Groupings

Group	Description	Income	Number of People	Case Number (Percentage %)
1	Lowest	< 10,000	1 - 4	42 (1.93)
		<15,000	5 or more	
2	Lower middle	10,000 – 14,999	1 - 2	306 (14.08)
		10,000 – 19,999	3 - 4	
		15,000 – 29,999	5 or more	
3	Middle	15,000 – 29,999	1 - 2	703 (32.34)
		20,000 – 39,999	3 - 4	
		30,000 – 59,999	5 or more	
4	Upper middle	30,000 – 59,999	1 - 2	791 (36.38)
		40,000 – 79,999	3 - 4	
		60,000 – 79,999	5 or more	
5	Upper	>60,000	1 - 2	332 (15.27)
		>80,000	3 or more	

Information about intact family status was also collected in the Parent Questionnaire. The *intact family status* variable (BDMCD16) was a categorical variable: 1 = Child is a member of an intact family; 2 = Child is not a member of an intact family but is in a couple census family; and 3 = Other (Child is a member of a single parent family, is a foster child, or does not live with a parent). In the current study, the last two categories were grouped together and thus created a dichotomous intact family status variable (Intact Family=1, and Nonintact Family=0).

### 3.2.2 Parenting Practice

In Cycle two of the NLSCY, the section “parent-child interaction” in the Parent Questionnaire was designed to collect information about parenting characteristics. Seventeen items in BPRCb21 to BPRCb30 were responded to by parents of 12- and 13- year old children and were used in the current study. These items described negative parenting practice with their children. Some sample questions were: *When <child's name> breaks the rules or does things that he/she is not supposed to, how often do you raise your voice, scold or yell at him/her?*, *When we argue we stay angry for a very long time*, and *How often do you enforce a rule or do not enforce a rule depending on your mood?*. Parents' responses to these questions were used as a measure of parenting practice. All of the items had 5 possible responses. For sub-questions in BPRCb29, the five responses were *never*, *rarely*, *sometimes*, *often*, and *always*. For sub-questions in BPRCb30, the five responses were *not at all*, *a little*, *sometimes*, *pretty often*, and *almost all or all of the time*. For question BPRCb21 and BPRCb25, the five responses were *always*, *often*, *sometimes*, *rarely*, and *never*. All the responses were recoded in a way that the high score represented a positive parent-child interaction.

### 3.2.3 Children's Academic Achievement

In Cycle two of the NLSCY, all the children above Grade 2 were required to take tests in mathematics and in reading. Students in each grade had separate

versions of the tests. The mathematics test used in the NLSCY was “a short version of the CAT/2 mathematical operations test. The CAT/2 mathematical operations test measures the student’s ability to do addition, subtraction, multiplication, and division operations on whole numbers, decimals, fractions, negatives and exponents” (HRDC, 1996). The test consisted of 15 multiple-choice questions and was administered by the children’s teachers in class. Each child had two mathematics test scores: a gross score which is the number of correct answers, and a scale score which was derived from standards established by Canadian Test Center (CTC) (HRDC, 1996). Based on a normative sample of Canadian children from all 10 provinces, the scale was developed using a Thurstone procedure, with a range from 1 to 999. The scale score was used in the current study as a measure of children’s academic achievement because using a scale score “makes it possible to follow a child’s progress over the years by comparing his/her scaled score to the average scaled score calculated for the grade level, as well as by examining individual growth curves” (HRDC, 1996). Although the current study is cross-sectional in nature, using the scale scores makes it possible to extend the results to future studies which use other cycles of the NLSCY data. The descriptive statistics on children’s mathematics scaled scores are included in Table 4.



## CHAPTER 4

### Results

#### 4.1 Factor Analysis

Factor analysis is “an analytic technique that permits the reduction of a large number of interrelated variables to a smaller number of latent or hidden dimensions” (Tinsley & Tinsley, 1987). A confirmatory maximum likelihood factor analysis with promax rotation was conducted to examine the underlying structure of the items pertaining to negative parenting practices. Squared multiple correlations were used as the initial commonality estimates. Initially seventeen questions were used but four items were later excluded for one of the following reasons: 1. They did not contribute much to either of the two factors; 2. They loaded too heavily on both of the factors; 3. Excluding them increased the reliability of each scale.

It was hypothesized that two factors, harshness and inconsistency, were underlying the thirteen items. The factor analysis confirmed the hypothesis ( $TLI = .90$ ,  $\chi^2 = 504$ ,  $df = 53$ ,  $p < .0001$ ). Although chi-squared showed that more variance needed to be explained, the TLI indicated an acceptable model fit. When a third factor was added, it split the first factor, harshness, into two factors and the factors were not clearly interpretable. As a result, a two factor solution was retained. The results of factor analysis are provided in Table 5. Although variables BPRCb29G and BPRCb29M loaded fairly heavily on both of the factors,

adding those two factors increased the reliability of each scale. Similarly, although the loading of variable BPRCb30E on the first factor was fairly small (.27), this variable was included because it resulted in increased reliability of the harshness scale.

Factor scores for each scale were calculated based on the thirteen variables and then used in the latter analyses. A factor score is “a composite score based on each variable’s contribution to the factor. Individuals’ scores on each variable are multiplied by factor score coefficients, and the products are summed across the variables to yield a factor score” (Tinsley & Tinsley, 1987). For harshness, a high score meant that the parents seldom or never yell at the children, they don’t nag about little things, and they don’t stay angry for a very long time when arguing. For inconsistency, a high score meant that the parents almost never forget a rule they made, and they do not enforce a rule depending on their mood or only when the rule suits them. The descriptive statistics on the two factors are included in Table 4.

Table 4. Descriptive Statistics of Mathematics Score, Parenting Practice and Family SES

	Mean	SD	Minimum	Maximum
Mathematics Scale Score	534.29	76.94	314.00	794.00
Harshness	0.00	0.92	-3.22	2.23
Inconsistency	0.00	0.84	-2.60	1.97
SES	- 0.09	0.72	-2.00	1.75

The factors harshness and inconsistency were correlated ( $r = .55$ ). The factor harshness had an internal consistency of 0.81, while the factor inconsistency had an internal consistency of 0.61. The internal consistency for inconsistency was somewhat low. This might be due to the relatively small number of items included in this factor. As mentioned before, most of the PMK were mothers of the children. So, harshness and consistency in this study can be, to some extent, interpreted as mothers' harshness and inconsistency in parenting practices.

Table 5. Results of a factor analysis of negative parenting practice

Questions on negative parenting practice	Factor 1	Factor 2	Communi- -nality
BPRCb30D: We yell at each other.	.69	.24	.54
BPRCb29K: How often do you get angry and yell at him/her?	.64	.28	.43
BPRCb30B: We disagree and fight.	.63	.17	.48
BPRCb21: When <child's name> breaks the rules or does things that he/she is not supposed to, how often do you raise your voice, scold or yell at him/her?	.62	.24	.45
BPRCb30C: We bug each other and get on each other's nerves.	.59	.18	.37
BPRCb30G: When we disagree, he/she stomps out of the room, or house, or yard.	.46	.09	.22
BPRCb29G: How often do you nag him/her about little things?	.45	.35	.15
BPRCb25: When <child's name> breaks the rules or does things that he/she is not supposed to, how often do you take away privileges or put in room?	.38	.04	.33
BPRCb30E: When we argue we stay angry for a very long time.	.27	.12	.09
BPRCb29J: How often do you keep rules only when it suits you?	.07	.60	.36
BPRCb29P: How often do you enforce a rule or do not enforce a rule depending on your mood?	.20	.57	.30
BPRCb29C: How often do you soon forget a rule that you have made?	.16	.53	.36
BPRCb29M: How often do you threaten punishment more often than you use it?	.39	.41	.33

## 4.2 Cluster Analysis

Factor scores emerging from the factor analysis were used in a cluster analysis to determine the possible patterns in parenting practice. According to Seifert and Bulcock (1996), cluster analysis refers to

...a class of procedures designed to classify objects into groups such that objects in one group are more similar to each other than they are to objects in other groups. In this sense, a sample of objects or people may be thought of as consisting of a mixture of subgroups, cluster analysis is a statistical procedure for identifying those different subgroups (Milligan & Cooper, 1987).

In the current study, scores for harshness and inconsistency were subjected to cluster analysis procedures to determine if different parent subgroups may be defined by those two variables. All the children who did not have a mathematics score were excluded from this analysis. This reduced the sample size to 1,585.

A K-means cluster analysis procedure was used to test a number of possible clustering solutions ranging from two to ten. A four cluster solution was chosen because: 1. Model fit index of the four cluster solution, Tucker and Lewis's Reliability Coefficient (.90) and Cubic Clustering Criterion (-2.225), indicated an acceptable model fit; 2. This solution accounted for an adequate percentage of the variance (75%); 3. This solution represented the spread of the data such that each group included a sufficient number of cases to obtain



adequate power to identify statistical differences between groups (Seifert & Bulcock, 1996); 4. This solution was readily interpretable. The means and standard deviations for harshness and inconsistency in each cluster are shown in Table 6, and Figure 1 presents a graphical display of the cluster means. The mean score and standard deviations for mathematics and family SES are also displayed in Table 6.

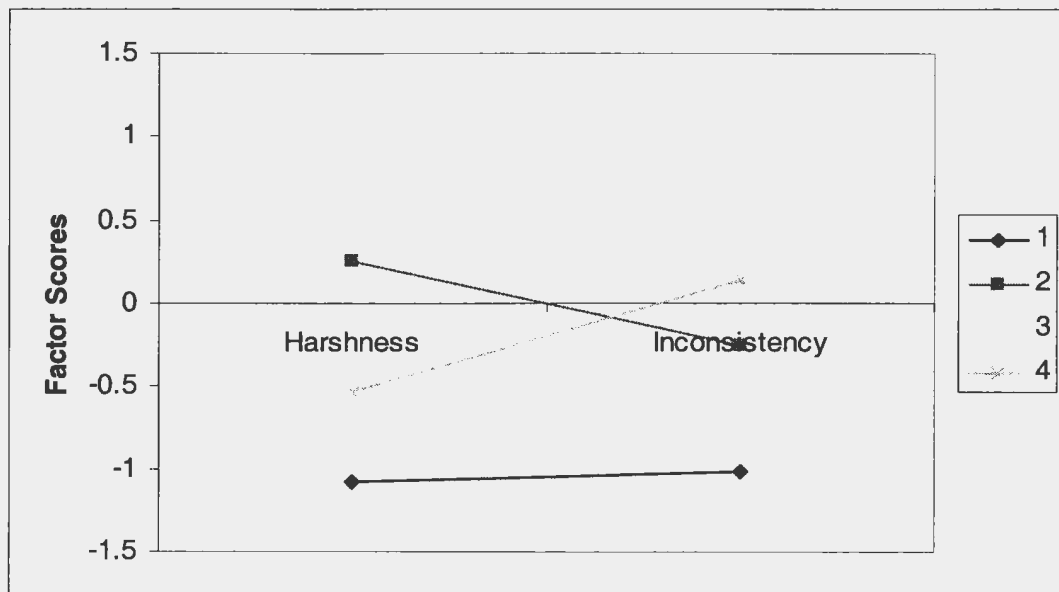
The sample was almost evenly distributed across the four clusters. Parents in the first cluster scored less than average on both of the parenting scales by approximately two standard deviation units. This was a group of parents who practiced harsh discipline with their children and the way they kept their rules was not consistent, or expectable. Parents in the second cluster scored more than average on the harshness scale by approximately 2/3 standard deviation and less than average on inconsistency scale by approximately 2/3 standard deviation. Parents in the third cluster scored more than average on both harshness and inconsistency scales by approximately two standard deviation units. They demonstrated a rational, not harsh, and consistent style of parenting practice. Parents in the last cluster scored approximately one standard deviation lower than average on the harshness scale and about 1/3 standard deviation unit higher than average on inconsistency scale. One-way ANOVA revealed that there were significant differences on harshness ( $F_{3,1573} = 1582.37, p < .0001$ ) and consistency ( $F_{3,1573} = 1414.17, p < .0001$ ) between the four clusters. Post hoc Tukey tests indicated that all the four clusters were significantly different on both harshness and inconsistency scores (see Table 6).

Table 6. Means and standard deviations for parenting practice, family SES, and achievement in Mathematics by parenting cluster

Cluster Labels	1	2	3	4
	Less than average on harshness and inconsistency	More than average on harshness	More than average on harshness and inconsistency	Less than average on harshness
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Harshness	-1.08 <sub>a</sub> (0.55)	0.26 <sub>b</sub> (0.37)	0.99 <sub>c</sub> (0.51)	-0.54 <sub>d</sub> (0.35)
Inconsistency	-1.02 <sub>a</sub> (0.43)	-0.26 <sub>b</sub> (0.42)	0.95 <sub>c</sub> (0.46)	0.14 <sub>d</sub> (0.43)
SES	-0.23 <sub>a</sub> (0.66)	-0.09 <sub>b</sub> (0.72)	0.02 <sub>b</sub> (0.75)	-0.01 <sub>b</sub> (0.69)
Mathematics Score	516.44 <sub>a</sub> (73.75)	542.18 <sub>b</sub> (73.76)	540.23 <sub>b</sub> (80.78)	535.29 <sub>b</sub> (76.72)
Case Number	363 (23)	438 (28)	438 (28)	335 (21)
(Percentage %)				

Note: Subscript which differs indicates a significant difference between means.

Figure 1. Cluster means for harshness and inconsistency



A one-way ANOVA of mathematics scores suggested that there were differences between clusters on mathematics scores ( $F_{3,1573} = 9.06, p < .0001$ ). Tukey tests comparing the mathematics scores among the four clusters were then performed. The results indicated that cluster one, less than average on harshness and inconsistency, was significantly different from the other three clusters. Children whose parents practiced harsh disciplines and were inconsistent in their disciplines did significantly worse in mathematics than children whose parents were less harsh and more consistent in their parenting (see Table 6). No differences were found between clusters two, three, and four.

Family SES was also subjected to a one-way ANOVA and significant differences were found between clusters ( $F_{3,1573} = 9.46, p < .0001$ ). Similar to

mathematics scores, Tukey tests revealed that cluster one was significantly different from the other three clusters. Parents who practiced more harsh and inconsistent disciplines were in families with lower SES levels than parents in the other three clusters (see Table 6). No differences were found between clusters two, three, and four.

Although there were significant difference between clusters two, three, and four on both harshness and inconsistency scales, there were no differences on mathematics scores and family SES between those clusters. For example, there was a 1.5 standard deviation difference on harshness and 0.8 standard deviation difference on inconsistency between cluster three and cluster four with no effect on mathematics scores. This indicated that high levels of harshness and inconsistency (indicated by low scores) led to lower mathematics scores, but moderate or low level of harshness and inconsistency did not. This may also indicate that SES had stronger influence on mathematics scores than harshness and inconsistency did. Cluster one had both high mathematics scores and high SES. There were no differences on mathematics and SES for clusters two, three, and four, despite that harshness and inconsistency were significantly different between those clusters.

#### 4.3 Correlational Analysis

A correlational analysis of family SES, parenting practice, and adolescents' math achievement was performed, for boys and girls separately. The results were presented in Table 7. There are several noteworthy correlations.

First, children's academic achievement was related to both parenting practice and family SES in the predicted directions: the correlation between academic achievement, and harshness and inconsistent was negative while the correlation between academic achievement and SES was positive. Second, the composite SES variable was the single strongest predictor for academic achievement, both for girls ( $r = .194$ ) and boys ( $r = .261$ ). The correlation between parenting practice and academic achievement was small, ranging from .077 to .140. Not surprisingly, since the composite SES variable was formed from these variables, all the five components of family SES were highly correlated and they were all correlated with the composite SES variable, with  $r$  ranging from .481 to .731. Mother's occupation (.682 for girls, and .706 for boys) and father's occupation (.731 for girls, and .692 for boys) were highly correlated with composite SES variable, while intact family status was only moderately correlated with composite SES variable (.199 for girls, and .188 for boys). As indicated before, harshness and inconsistency were highly correlated for both boys and girls (.69), which resulted from the fact that the promax rotation procedure allows the factors to be correlated rather than forcing the correlation to zero as in the varimax rotation. It is pertinent to mention that this correlation is different from the correlation between harshness and inconsistency reported in the factor analysis section ( $r = .55$ ). It might be due to the different sample sizes used for the factor analysis and correlational analysis.

The correlation matrix was also used to explore gender differences. The correlations between family SES and academic achievement were consistently



higher for boys than for girls. For boys, harshness and inconsistency were correlated with all the SES variables except for father's occupation. However, for girls, harshness was only correlated with mother's occupation, and inconsistency was only correlated with parental education. However, those differences were small and not statistically significant. For example, the difference in correlations between math achievement and mother's education for boys ( $r = .165$ ) and girls ( $r = .090$ ) did not approach statistical significance ( $z = 1.52$ ,  $p > .10$ , two-tailed), and thus there was no gender difference found in the relation between family SES, parenting practice, and children's mathematics achievement.

Table 7. Correlations between Academic Achievement, Parenting Practice and Family SES

	1	2	3	4	5	6	7	8	9	10
1. Achievement	-	.140**	.082*	.194**	.119**	.100**	.090*	.141**	.138**	.108**
2. Harshness	.113**	-	.687**	.055	.011	.059	.024	.044	.089*	.037
3. Inconsistency	.077*	.688**	-	.087**	.050	.021	.067*	.075**	.067	.059
4. SES	.261**	.078**	.126**	-	.698**	.199**	.481**	.512**	.682**	.731**
5. Household Income	.179**	.067*	.062*	.663**	-	.290**	.318**	.313**	.329**	.369**
6. Intact family status	.117**	.063*	.075*	.188**	.245**	-	.080*	.080*	.000	.070*
7. Mother's education	.165**	.082**	.084**	.510**	.304**	.065*	-	.316**	.245**	.192**
8. Father's education	.206**	.067*	.102**	.498**	.282**	.001	.330**	-	.200**	.331*
9. Mother's occupation	.167**	.082*	.098**	.706**	.305**	.073*	.311**	.205**	-	.311**
10. Father's occupation	.152**	.045	.054*	.692**	.283**	.026	.193**	.300**	.273**	-

Note: Correlations above the diagonal are for girls, and correlations below the diagonal are for boys.

*ns* range from 619 to 1096.

\* $p < .05$ . \*\* $p < .01$ .

#### 4.4 Path Analysis

Path analysis was used to examine the relations between family SES, parenting practice, and adolescents' mathematics achievement, and the mediating effect of parenting practice on SES. Arbuckle's (2003) Amos 5.0 program was used for all path analyses. It was hypothesized that: 1. Family SES has a direct effect on adolescents' mathematics achievement; 2. Parenting practice is related to family SES; 3. The effects of family SES would be mediated through the parenting practices in accounting for adolescents' mathematics achievement. All the children who did not have a mathematics score were excluded from this analysis. This resulted in a sample size of 1,585. The findings of the path analyses for boys and girls are summarized in Figure 2 and Figure 3 respectively.

First, in order to test both the direct and indirect effect of family SES on mathematics achievement for boys, a model with a direct path from family SES to mathematics achievement and indirect paths from family SES through parenting practice factors to mathematics achievement (Model 2.2) was compared with a model without the indirect paths (Model 2.1). Model 2.2 included paths that represented the mediated effects of family SES. Family SES and harshness were significantly related to mathematics achievement in both Model 2.1 and Model 2.2. Model 2.2 also indicated that harshness and inconsistency were significantly related to family SES. The effect sizes of the paths were small; however, the relationship between family SES and mathematics achievement approached

moderate in size. The nonsignificance of inconsistency might be due to the high correlation between inconsistency and harshness ( $r = .69$ ).

The change in chi-square from Model 2.1 to Model 2.2 indicated that, by adding path from family SES to parenting practice, Model 2.2 was significantly better than Model 2.1 ( $\Delta\chi^2 = \chi^2_{2.1} - \chi^2_{2.2} = 1010 - 975 = 35$ ,  $df = df_{2.1} - df_{2.2} = 6 - 2 = 4$ ,  $p < .05$ ). That is, there was a significant indirect path from family SES to children's mathematics achievement. This was tested simultaneously for boys and girls, and the same pattern appeared for both groups.

An alternative model without the direct path from family SES to mathematics achievement (Model 2.3) was compared to Model 2.2, in order to test the mediating effects of parenting practice on family SES. The change in chi-square demonstrated that Model 2.3 was significantly poorer than Model 2.2 ( $\Delta\chi^2 = \chi^2_{2.3} - \chi^2_{2.2} = 1056 - 975 = 81$ ,  $df = df_{2.3} - df_{2.2} = 4 - 2 = 2$ ,  $p < .05$ ). That is, the direct path from family SES to mathematics achievement was significant. Parenting practice was not a significant mediator between family SES and mathematics achievement. Family SES and parenting practice had significant but separate effects on mathematics achievement.

In order to test gender differences in the relation of family SES and mathematics achievement, the direct path coefficients from family SES to mathematics achievement for boys in Model 2.2 and for girls in Model 3.2 were set to be identical. The change in chi-square indicated that the alternative models were not significantly different from the base models ( $\Delta\chi^2 = 976 - 975 = 1$ ,  $df = 3$

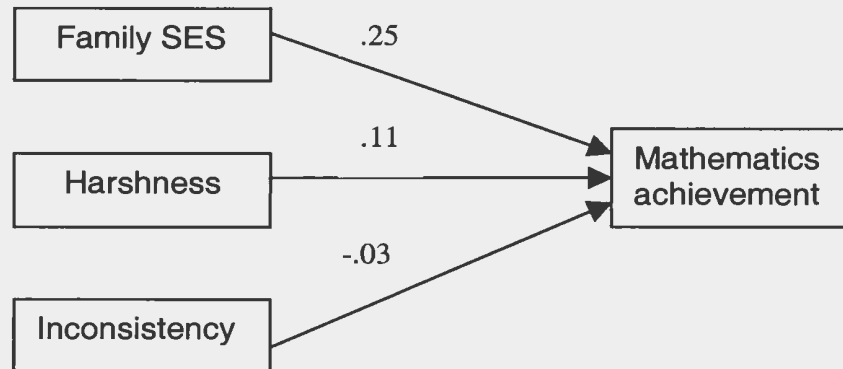
– 2 = 1). As indicated in the correlational analysis, no gender difference emerged in the path analysis.



Figure 2. Path analyses of family SES, parenting practice, and mathematics achievement for boys

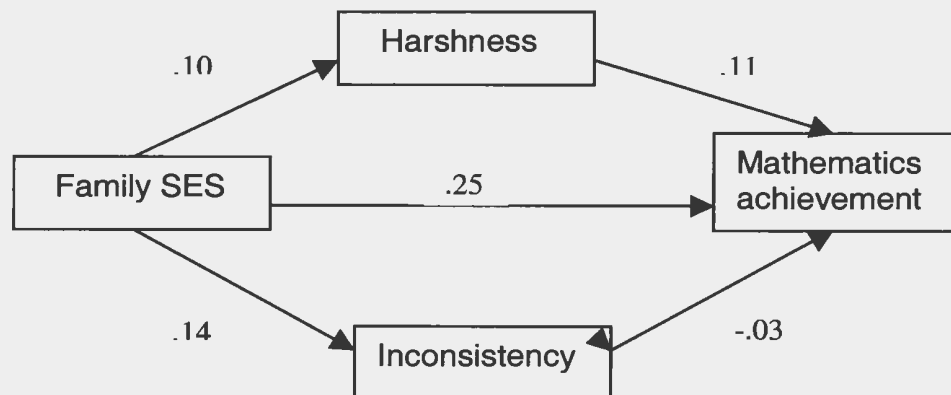
Model 2.1

$N = 784$   
 $\chi^2 = 1010.7$   
 $df = 6$   
 $p < .001$



Model 2.2

$N = 784$   
 $\chi^2 = 975.1$   
 $df = 2$   
 $p < .001$



Model 2.3

$N = 784$   
 $\chi^2 = 1056.2$   
 $df = 4$   
 $p < .001$

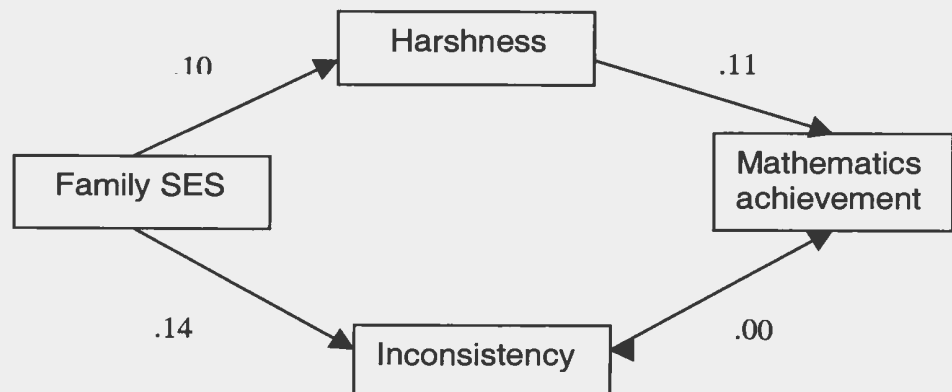
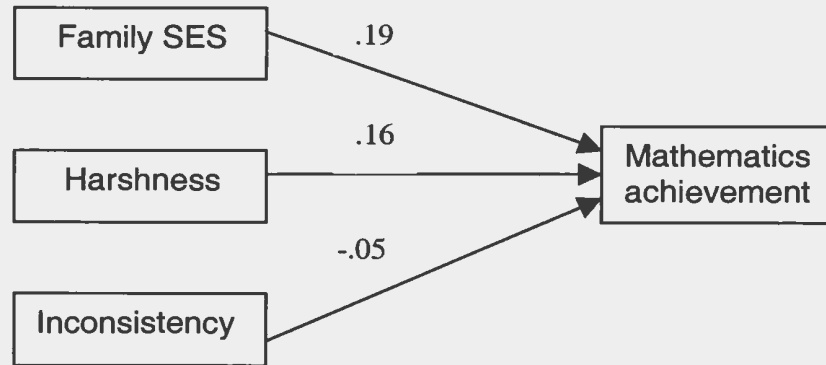


Figure 3. Path analyses of family SES, parenting practice, and mathematics achievement for girls

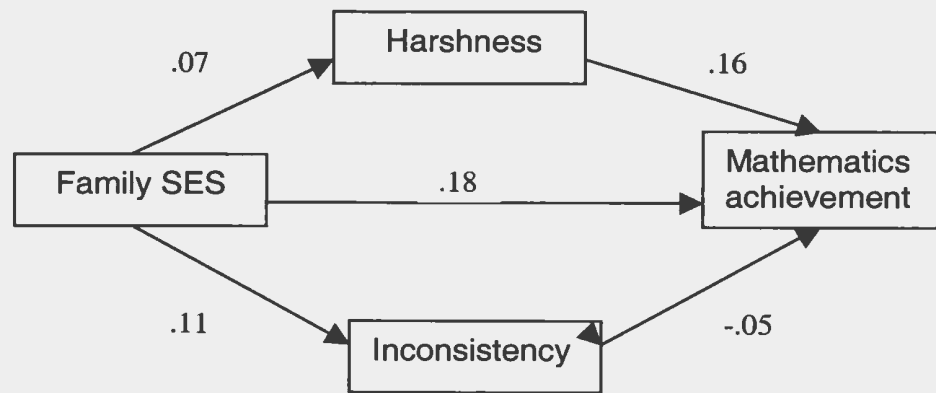
**Model 3.1**

$N = 801$   
 $\chi^2 = 1010.7$   
 $df = 6$   
 $p < .001$



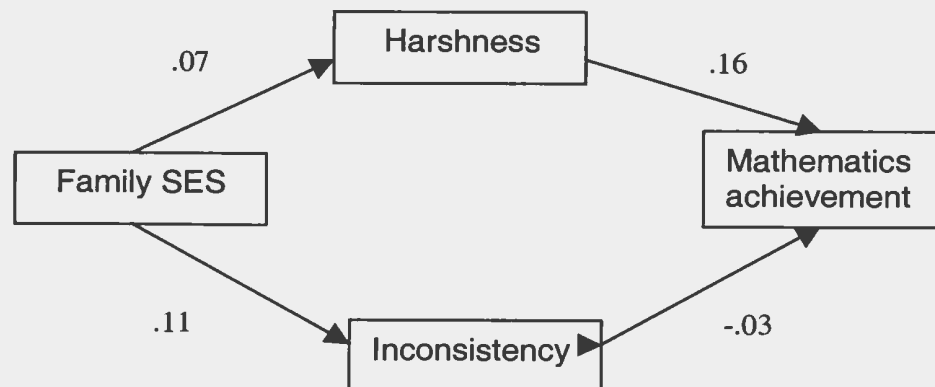
**Model 3.2**

$N = 801$   
 $\chi^2 = 975.1$   
 $df = 2$   
 $p < .001$



**Model 3.3**

$N = 801$   
 $\chi^2 = 1056.2$   
 $df = 4$   
 $p < .001$



## CHAPTER 5

### Discussion

#### 5.1 Conclusion

A sample of 12- and 13-year-old adolescents who participated in Cycle two of the NLSCY was used in this study to examine the relations between parenting practice, family SES, and adolescents' academic achievement, and test the mediating effect of parenting practice in the link of family SES to adolescents' academic achievement. The findings presented here confirmed and expanded those of previous studies. As in previous studies, the current study found that parenting practice was significantly related to adolescents' academic achievement. Both the cluster analysis and the correlational analysis suggested that adolescents whose parents practiced harsh and inconsistent disciplines performed significantly poorer in mathematics tests than adolescents whose parents were less harsh and more consistent in disciplining. Contrary to some previous studies (Fletcher, Steinberg, & Sellers, 1999; Wagonseller & McDowell, 1979), consistency showed an insignificant relation to academic achievement in the path analysis. This might be due to the high correlation between harshness and inconsistency so that harshness accounted for most of the shared variance. Another explanation might be found in Fletcher et al.'s (1999) discussion about the relation between adolescents' academic achievement and interpersonal consistency. They argued that perceiving parents as consistent did not appear to be as overwhelming for adolescents as for young children, because the former

had the cognitive capabilities to understand that people have different beliefs, and parents will not always agree. It might also be true for the effect of intrapersonal consistency with adolescents. That is, adolescents, compared to young children, have increased cognitive capabilities and understand that parents may have different opinions about childrearing under certain circumstances and, thus, inconsistent parenting practice was not as deleterious for adolescents as for young children.

Both the cluster analysis and the path analysis indicated that family SES was significantly related to parenting practice. Parents of higher SES levels tended to be less harsh and more consistent when interacting with their children. When testing the correlation between family SES and parenting practice separately for boys and girls, gender differences in the relations were small and nonsignificant. Although prior studies (Beyer, 1995; Gold & Andres, 1978) argued that boys were subjected to more influences from family SES factors than girls, this argument was not supported in the current study.

The path analysis and the correlational analysis indicated that adolescents' academic achievement was significantly related to family SES. Adolescents from families of higher SES levels performed better than adolescents of families of lower SES levels. Although parenting practice mediated the effects of family SES on adolescents' academic achievement, the effect was small. This suggested that parenting practice was not a significant mediator between family SES and academic achievement for 12- and 13-year old adolescents in the NLSCY. Both SES and parenting practice contributed

significantly to adolescents' academic achievement, but they appeared to have independent effects. No gender differences were found in the relations between parenting practice, family SES, and adolescents' academic achievement. It is possible that more complicated gender difference patterns exist in the heterogeneous sample which was used in the current study, than those in the homogenous samples, such as middle-class white families.

## 5.2 Limitations of the Study

Although significant relations were found between family SES, parenting practice, and adolescents' academic achievement, due to the cross-sectional nature of the NLSCY data set used in the current study, limited causal statements could be made about the effects of parenting practice on academic achievement, or about the effects of family SES on parenting practice. For example, it could not be argued that the increase of families' household income or parental occupational prestige will lead to higher level of adolescents' academic achievement. Similarly, it could not be argued that children's poor performance in mathematics is caused by negative parenting practice. As indicated by Stafford and Bayer (1993) and Beyer's (1995), the relation between parenting styles and children's academic achievement could be bidirectional: parents developed harsh traits and inconsistent behaviors as a result of their children's poor performance in studying.

In the current study, parents' own observation of their parenting practice was used for the analysis. However, it has been argued that parenting

characteristics are only meaningful only to the extent that they are perceived by the children (Fletcher et. al., 1999). Similarly, Paulson (1994) suggested that children's "achievement may be more highly related to their own perceptions of parenting than to what parents think they are doing in the home". It would be helpful if children's perceived parenting practice could be compared with parents' own report on their parenting practices to validate parents' self reports. In Cycle two of the NLSCY, children of age 12 and 13 were asked to complete a children's questionnaire which included perceived parenting practices. Unfortunately, this questionnaire could not be connected with the parent's questionnaire because the child ID number was suppressed in the public released dataset, and thus made such analyses impossible.

The fact that two parenting practice variables, harshness and inconsistency, were highly correlated might be problematic in the path analyses. This may explain the nonsignificant relation between inconsistency and adolescents' academic achievement. However, this high correlation was expected due to the promax rotation procedure in the factor analysis and due to the findings suggested by previous studies. Research has showed that measures of parental negativity tend to cohere to a greater degree than measures of parental positivity (Patterson, Reid, & Dishion, 1992). For example, Gardner (1989) found that mothers who were more inconsistent also engaged in more conflict with their children.

Some researchers suggested that mediators between parenting practice and children's academic achievement, and between parenting practice and



family SES should be further explored in order to obtain a better understanding of the underlying relations (Beyer, 1995). Antisocial Behavior, emotional distress, children's perceived competence, motivation, and self-esteem are among the possible mediators between parenting practice and children's academic achievement. Similarly, family SES variables may have direct influence on parental involvement, parents' role satisfaction, depression, and anxiety which in turn affect parenting practices. The mediating effects of those unexplored variables may partly explain some of the disparate findings in the current study.

There are many aspects of SES which need to be explored further. For example, in McLoyd's (1998) review of socioeconomic disadvantage and child development, duration, timing, and neighborhood context of poverty have been all stressed and proved to be significantly related with children's academic achievement. It demonstrated that long-term or persistent poverty, compared with short-term or transitory poverty, and early childhood low SES have more effect on children's academic achievement, such as grade retention. It also showed that prenatal or early childhood family socioeconomic factors plays a stronger role in predicting children's cognitive development and school learning than late adolescent or current family SES level (Alwin & Thornton, 1984).

### 5.3 Summary

In summary, three conclusions can be drawn. First, family SES and parenting practice were significantly related to adolescents' academic achievement for 12- and 13-year old adolescents in the NLSCY. Adolescents

performed significantly poorer when they were from families of lower SES levels, or when their parents practiced harsh and inconsistent disciplines. Second, parenting practice was not a significant mediator between family SES and academic achievement. Parenting practice and family SES appeared to have independent effects on adolescents' academic achievement. Finally, family SES was also related to parenting practice. Parents of higher SES levels tended to be less harsh and more consistent when interacting with their children.

The results in the study indicate that family level variables are important for children's educational success. First, family economic status, such as family income and parent education, has both direct and indirect effects on children's academic achievement. It is essential to assure adequate family income and educational learning opportunities for parents in order to enhance children's school performance. Second, the significant impact of parenting practice variables on adolescents' academic achievement in this study also suggests that interventions on parent-child relationship, such as parent education programs or parenting classes, are potentially useful. Parents should be informed about the effects of parenting style and parenting practice on their children's academic performance and be encouraged to change harsh and inconsistent parent-child interactions into more productive patterns of interaction.

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